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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/752,548

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EXAMINER

MULLINS, BURTON S

ART UNIT

PAPER NUMBER

2834

NOTIFICATION DATE

DELIVERY MODE

01/13/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/752,548	<b>Applicant(s)</b> KIM ET AL.	
	<b>Examiner</b> BURTON MULLINS	<b>Art Unit</b> 2834	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 November 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,5-7,12 and 25-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-7,12 and 25-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

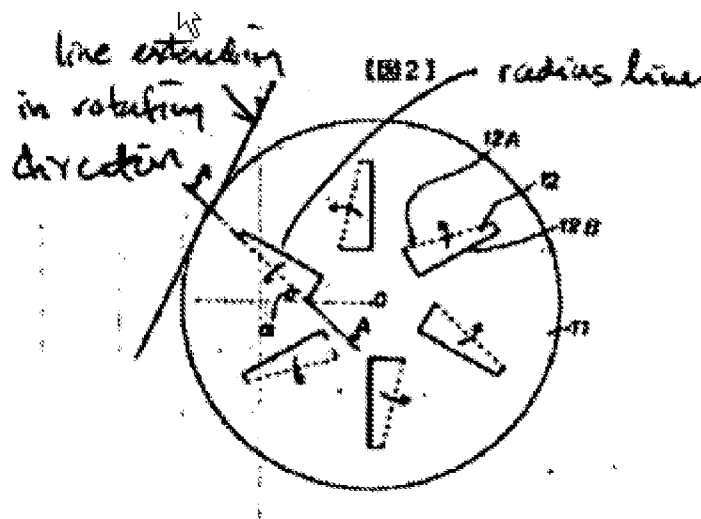
1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 5-7, 12 and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi et al. (US 6,744,157) in view of Kurihara et al. (JP 10-210727) and Uemura (US 6,781,263). Choi teaches a motor (Figs.3&6) comprising: a stator (core) 130; a rotor (rotor conductor) 120 rotatably disposed around the stator 130; and a rotor cup 110 having cooling-holes 115 formed at the bottom part thereof for allowing external air to flow into the inside of the rotor cup therethrough (c.6:30-41; arrows in Fig.6 denote air flow), and lower blades 114 formed at the bottom part thereof for generating a blowing force (c.6:43-46), the rotor 120 being fixed to the rotor cup 110 at the inner circumference thereof (c.5:20-22), wherein each of the lower blades 114 protrudes from one side of each of the cooling-holes 115 towards the stator 130 (Figs.3&4), wherein a plurality of vents 116 are located at a lower circumferential surface of the rotor cup 110 (Fig.3), a bottom of the vents 116 is located above a bottom of the rotor cup 110 (Fig.3), and a top of the vents 116 is located above a top of the lower blades (Fig.3) such that the air introduced into the inside of the rotor cup 110 through the cooling holes 115 formed at the bottom of the rotor cup 110 collides with the stator 130 and is discharged to outside of the rotor cup 110 without passing through the stator 130 (arrows, Fig.6; c.7:4-14).

Choi differs in two respects: 1) each of the lower blades 114 and the cooling-holes 115 do not have “an acute sloping angle to the line extended in the rotating direction of the rotor cup and perpendicular to the radial direction of the rotor cup”, and 2) the plurality of upper blades 113

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located above the top of the rotor 120 do not “discharg[e] external air, which flows into the rotor cup [110] through the cooling-holes [115] formed at the bottom part of the rotor and then passes through the stator [130], to outside of the rotor cup”; rather, the upper blades 113 suck in external air which then passes through the stator 130 and discharges to the outside of the rotor cup 110 through vents 116 (c.7:15-27; Fig.6).

Regarding (1), Kurihara (see partial machine translation) teaches (Fig.2) a rotor 1 and rotor cup including cooling holes 11A with blades (pieces) 12 wherein each of the blades and the cooling-holes are trapezoidal and slanted such that each has an acute sloping angle to the line extended in the rotating direction of the rotor cup and perpendicular to the radial direction of the rotor cup, thereby improving air flow and cooling in either direction of rotation (see translation [0010] and marked Fig.2 below).



Regarding (2), Uemura teaches a bowl-shaped rotor (Figs.1-4) including a plurality of upper blades (fins) 16 located above the top of the rotor (i.e., at the open end). The upper blades 16 discharge external air from inside the rotor, thereby suppressing any temperature rise in the

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armature winding 18 and preventing lowering of efficiency (discharge air currents denoted by A in Fig.1; c.4:14-30).

It would have been obvious to (1) modify the lower blades and cooling holes of Choi such that each has an acute sloping angle to the line extended in the rotating direction of the rotor cup and perpendicular to the radial direction of the rotor cup per Kurihara since this would have improved air flow and cooling in either direction of rotation; and (2) it would further have been obvious to modify Choi's upper blades so that they discharge external air from inside the rotor per Uemura since such upper blades for discharging air were known to suppress temperature rise in the armature winding and prevent lowering of efficiency.

Regarding claim 5, as seen in Uemura Figs.2-3, the upper blades 16 extend upwardly from the top of the rotor and protrude upwardly above the rotor cup 11.

Regarding claims 6-7, in Uemura the upper blades of the fins 16 in Fig.1 are at a prescribed angle to the radial direction, with each upper blade having an acute sloping angle to the line extending in the rotating direction of the rotor and perpendicular to the radial direction of the rotor.

Regarding claim 12, the ratio between the whole areas of the cooling-holes 115 to the whole areas of vents 116 is not specifically taught by Choi to be in the range of 2:1 to 4:1. Kurihara and Uemura also do not teach specific ratios. However, a choice of range of ratios between 2:1 and 4:1 would have been an obvious matter of engineering design since it has been held that where the general conditions of a claim are met, discovering optimum or workable ranges involves only routine skill. In re Aller, 105 USPQ 233.

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Regarding claim 25, the cooling holes 11A in Kurihara are “trapezoidal” and thus generic to the species comprising rectangles. Further, changing the shape would have been obvious since changes in shape have been held to involve ordinary skill. In Dailey, 149 USPQ 47 (CCPA 1976).

Regarding claim 26, the perimeter of each cooling hole in Choi and Kurihara is entirely within a flat bottom portion of the bottom part of the rotor cup.

Regarding claims 27-29, the shape and size of the blades and cooling holes in Choi and Kurihara is the same, since each blade is a portion of the bottom part that has been cut and bent.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1, 5-7 and 25-29 have been considered but are moot in view of the new ground of rejection.

### ***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BURTON MULLINS whose telephone number is (571)272-2029. The examiner can normally be reached on 9-5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Q.Lueng can be reached at 571-272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BURTON MULLINS/  
Primary Examiner, Art Unit 2834

bsm  
18 December 2008